REMARKS

Claims 1, 2, 4-35, and 37-45 are presently active in this case. Claim 3 has been cancelled, claims 1, 2, 4, 5, 11, and 12 have been amended, and claim 36 has been withdrawn by the present amendment.

In the outstanding Office Action, Claims 1, 2, 3, 15, 18, 19, and 37 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,221,893 to Kondou et al. Claims 4-8, 11, 12, 14, 38-45, 16, 28, 29-35, 9, 10, 13, 17, and 20-27 were objected to as being dependent upon a rejected base claim, but were indicated as being allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication that the above-noted claims would be allowable if rewritten in independent form. However, since Applicants believe themselves entitled to the scope of protection defined by Claims 1 and 2 (as amended) and original Claim 19, the above-noted dependent claims have presently been maintained in dependent form.

Briefly recapitulating, the present invention (Claim 1) is directed to a deterioration diagnosis method for diagnosing the amount of corrosion weight loss of metal non-destructively, the deterioration, and remaining life of electrical equipment in which such a metal is used as a structural material. To that end, the method includes the steps of formulating a corrosion loss of a metallic material to exposure days under an atmospheric condition as a function of environmental assessment points which represent a level of harmfulness of the atmospheric condition; and diagnosing a life span of the metallic material based upon the corrosion loss calculated by the function. The environmental assessment points are a sum of multiplications of separate assessment points for each of a plurality of environmental factors, including temperature, humidity, corrosive gas, sea salt particles in an

atmospheric environment, or a distance from a coast. As illustrated in Figure 2, each environmental factor is classified and determination of environmental assessment points is performed for each environmental factor. The bases for classification and assessment points are the measured values of each environmental factor of several hundred different locations in the Japanese homeland and the results of investigating the corrosion of metallic materials exposed in those environments. Environmental assessment points that take into consideration all the environmental factors of atmospheric environments can be found by finding and totaling the assessment points for each separate environmental factor of those environments, and the corrosivity of the atmospheric environments can be objectively judged by the numerical values of the environmental assessment points.

As a result, it is possible to diagnose with good accuracy the corrosivity of metallic materials.[1] Further, the synergism (multiplier action) to the metal corrosion is quantified by the environmental assessment points by summing up the assessment points. By simply measuring the atmospheric conditions, an inference of the amount of corrosion of the metal employed therein and diagnosis of the deterioration of the equipment and its remaining life can be performed non-destructively.

In contrast thereto, the object of Kondou et al. is merely to diagnose the deterioration and remaining life of coatings by measuring the impedance of the coating. The impedance of the coating is found by measuring the current by applying voltage to the coating surface and to the underlying metal. The deterioration of the coating and the remaining life are diagnosed by applying a temperature correction based on the measured impedance. Diagnosis is automatically performed using a personal computer. The technical effect of Kondou et al. is

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[1] Specification, page 27, line 10 to page 28, line 16.

that the coating can be reapplied prior to corrosion of the base metal. Non-destructive diagnosis can be achieved in locations where application to the base metal is possible.

Likewise, the present invention (Claim 2) formulates a corrosion speed as a function of environmental assessment points and diagnoses a life span of the metallic material based on that function.

The present invention is also directed to deterioration diagnosis equipment. Claim 19 defines, among other things, a first database for storing a function giving a relationship to an amount of each environmental factor and assessment points for each factor, a second database for storing functions giving relationships between environmental assessment points and assessment points for each factor for each type of metallic material, and an environmental assessment points calculation unit for calculating environmental assessment points.

Claims 1 and 2 have been amended to include the limitations defined by original claim 3. The official action asserts regarding claim 3 that "Kondou discloses using multiplication factor of environment factors including humidity, temperature, corrosive gas, sea particle in the environment ...." Applicants respectfully traverse that assertion. Applicants point out that Kondou et al. at most state at column 9 lines 9-11 that "information about condition of environment of the measured equipment is inputted to [a] personal computer 1." However, Kondou et al. fail to teach or suggest that they use a plurality of assessment points, that data regarding each assessment point is multiplied by a factor, or that the separate assessment points are added together after each point has been multiplied by a factor. Thus, Kondou et al. are not believed to anticipate or render obvious the claimed invention defined by claims 1 and 2.

The official action asserts that Kondou et al. anticipate the subject matter defined by claim 19. Applicants respectfully traverse. Applicants point out that the official action relies on Figure 5 numerous times to support the rejection of claim 19. Figure 5 is a flow chart

illustrating a procedure. Claim 19 defines an apparatus. In particular, Step S1 of Figure 5 of Kondou et al. reflects that measuring data is input. However, that step fails to teach or suggest a first database for storing a function giving a relationship to an amount of each environmental factor and assessment points for each factor. Step S6 of Figure 5 reflects that impedance Z is compensated for with respect to temperature. However, that step fails to teach or suggest among other things a second database for storing function giving relationships between environmental assessment points and assessment points for each factor for each type of metallic material. Hence, Kondou et al. are not believed to anticipate or render obvious the claimed invention defined by claim 19.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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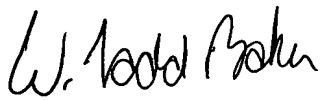

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